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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/932,127	08/16/2001	Joseph C. Chan	50R4781	4319

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Intellectual Property Department
Sony Electronics Inc.
123 Tice Boulevard - MD T1-1
Woodcliff Lake, NJ 07675

EXAMINER

LEE, RICHARD J

ART UNIT	PAPER NUMBER
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2613

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DATE MAILED: 03/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/932,127

Applicant(s)

CHAN, JOSEPH C.

Examiner

Richard Lee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

1. Claim 16 is objected to because of the following informalities: At claim 16, line 4, "Cf" should be changed to "Cb" for clarity. Appropriate correction is required.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3, 5-14, and 17-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishtiaq et al (US 2003/0012286 A1) in view of Zhao et al (US 2003/0067981 A1).

Ishtiaq et al discloses a method and device for suspecting errors and recovering macroblock data in video coding as shown in Figures 1-3, and substantially the same method for concealing errors in texture partition of a video packet, error concealment system for texture partition of a video packet, and computer readable medium containing executable instructions which, when executed in a processing system, causes the system to conceal errors in texture partition of a video packet as claimed in claims 1-3, 5-14, and 17-25, comprising substantially the same error location detector (i.e., 228, 230 of Figure 3 and see section [0031] at pages 3-4) to receive video packets, and determine a particular macroblock within the texture partition where error is detected, and determining a particular location within the texture partition where error is detected; an error concealment element (i.e., 216 of Figure 3 and see page 4) to conceal the error starting at the particular macroblock, and to conceal the error in texture data starting at the particular location; an image smoothness evaluator (i.e., SAD of macroblocks, see pages 4-5) to evaluate the concealed macroblocks, and evaluating image smoothness of the concealed texture data; repeating the concealing and evaluating with one more macroblock added prior to the

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previous particular macroblock/location, the repeating done until all macroblocks/texture data units in the texture partition have been concealed (i.e., the suspicious macroblocks, and any subsequent macroblocks within the slice are concealed (see section [0031] at pages 3-4, section [0040] at page 5, and SAD of macroblocks, pages 4-5); storing all decoded macroblocks of texture data in the texture partition up to the particular macroblock (i.e., 215 of Figure 3, and see section [0031] at pages 3-4); the concealing the error starting at the particular macroblock includes performing motion compensated temporal replacements of macroblocks starting at the particular macroblock (see section [0031] at pages 3-4); the evaluating image smoothness of concealed macroblocks includes computing smoothness of macroblock boundaries, wherein the smoothness of macroblock boundaries is measured by summing pixel value mismatches between macroblock boundary pixels, wherein the summing pixel mismatches includes storing partial mismatch values, wherein the summing pixel value mismatches includes summing squares of the pixel value differences (i.e., calculating SAD, MSE for macroblock boundaries, see pages 4-5); wherein summing pixel value mismatches includes summing squares of the pixel value differences that weights the pixel value mismatches between macroblocks belonging to different video packets differently (i.e., calculating MSE for macroblock boundaries, and weighted average of the average MSE/SAD over a given number of previous frames, the previous frames pertaining to different video packets, see pages 4-5); wherein the pixel value mismatches between macroblocks that belong to different video packets may be configured to weigh more than the pixel values mismatches between macroblocks that belong to same video packets, wherein the pixel value mismatches are computed by reusing the partial mismatch values from previous iterations (i.e., the adaptive threshold that is used to compare against the calculated

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SAD/MSE of frames and the thresholds T_y , T_{cb} , T_{cr} may be changed so that the pixel value mismatches between macroblocks that belong to different video packets may be configured to weigh more than the pixel values mismatches between macroblocks that belong to same video packets, and the average SAD/MSE uses reused partial mismatch values from previous iterations (i.e., previous frames), see pages 4-5); detecting the error in the video packet (i.e., as provided by 228, 230 of Figure 3), the detecting includes detecting invalid variable length code (and inconsistent resynchronization header information (see section [0007] at page 1); and the selecting a set of macroblocks includes recovering some of the stored decoded macroblocks, wherein the some of the stored decoded macroblocks include decoded macroblocks up to a macroblock that produced the best image smoothness (i.e., as provided by 215 of Figure 3, see section [0031] at pages 3-4).

Ishtiaq et al does not particular disclose, though, the a selector to select a set of macroblocks/texture data units, including a combination of decoded and concealed macroblocks/texture data units, that produces best image smoothness as claimed in claims 1, 19, 21, and 24. However, Zhao et al discloses a system and method for performing bit rate allocation for a video data stream, and teaches the conventional use of a combination of features for concealing errors in a video packet, such as a combination of decoded and concealed macroblocks/texture data unit that produces best image smoothness (i.e., replacing the unrecoverable macroblock with a corresponding macroblock from a previous frame and temporal concealment, see sections [0172] and [0174] of page 13). Therefore, it would have been obvious to one of ordinary skill in the art, having the Ishtiaq et al and Zhao et al references in front of him/her and the general knowledge of video error concealment techniques, would have had no

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difficulty in providing the combination of decoded and concealed macroblocks/texture data units that produces best image smoothness as taught by Zhao et al as part of the error concealment technique within the video decoder as shown in Figure 3 of Ishtiaq for the same well known concealment of video errors with a combination of features in order to produce the best image purposes as claimed.

4. Claims 4, 15, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishtiaq et al and Zhao et al as applied to claims 1-3, 5-14, and 17-25 in the above paragraph (3), and further in view of Talluri et al (6,111,916).

The combination of Ishtiaq et al and Zhao et al discloses substantially the same method for concealing errors in texture partition of a video packet, error concealment system for texture partition of a video packet, and computer readable medium as above, but does not particularly disclose performing motion compensated temporal replacements is done for those macroblocks whose motion vectors have changed; wherein the detecting includes detecting receipt of out-of-range motion vectors; and wherein the detecting includes DCT coefficient counts greater than a predetermined amount of approximately 64 pixels form a macroblock and Y/Cr/Cf pixel values out of range as claimed in claims 4, 15, and 16. However, Talluri et al discloses an error resilient encoding and teaches the conventional detection of out of range motion vectors and DCT errors (see column 3, lines 45-56, column 7, lines 18-52). And, in the event that motion vector error is detected as taught by Talluri et al, it is considered obvious that the particular motion compensated temporal replacements for macroblocks as disclosed in both Ishtiaq et al and Zhao et al (see section [0031] at pages 3-4 of Ishtiaq et al and section [0172] at page 13 of Zhao et al) may certainly be provided as the desired error concealment technique. Therefore, it would have

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been obvious to one of ordinary skill in the art, having the Ishtiaq et al, Zhao et al, and Talluri et al references in front of him/her and the general knowledge of error detections within video coders/decoders, would have had no difficulty in providing the error detecting of motion vectors and DCT coefficients as taught by Talluri et al as part of the error detection process within the combination of Ishtiaq et al and Zhao et al so that error concealment may further be provided to conceal the detected errors purposes as claimed.

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Zhu, Sekiguchi et al, Chung et al, Sun et al (5,247,363 ; and 5,442,400), Ozcelik et al, Lin, and Hannuksela et al disclose various types of video encoders.

6. Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(703) 872-9314, (for formal communications intended for entry)

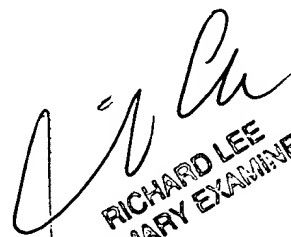
(for informal or draft communications, please label "PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington. VA., Sixth Floor (Receptionist).

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7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard Lee whose telephone number is (703) 308-6612. The Examiner can normally be reached on Monday to Friday from 8:00 a.m. to 5:30 p.m, with alternate Fridays off.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group customer service whose telephone number is (703) 306-0377.


RICHARD LEE
PRIMARY EXAMINER

Richard Lee/rl

3/5/04

